

<b>Notice of Allowability</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	09/932,896	KAZAR, MICHAEL LEON	
	<b>Examiner</b>	<b>Art Unit</b>	
	Shane M. Thomas	2186	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--**

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to RCE/Amendment filed 5/1/2006.
2. ☒ The allowed claim(s) is/are 1,3-35 (renumbered 1-34).
3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  - a) ☐ All    b) ☐ Some\*    c) ☐ None    of the:
    1. ☐ Certified copies of the priority documents have been received.
    2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
    3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\* Certified copies not received: \_\_\_\_\_.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

**THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☐ CORRECTED DRAWINGS ( as "replacement sheets") must be submitted.
  - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review ( PTO-948) attached
    - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date \_\_\_\_\_.
  - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date \_\_\_\_\_.

Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

**Attachment(s)**

- |  |   |
|--|---|
| <ol style="list-style-type: none"> <li>1. <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)</li> <li>2. <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)</li> <li>3. <input type="checkbox"/> Information Disclosure Statements (PTO-1449 or PTO/SB/08),<br/>Paper No./Mail Date _____</li> <li>4. <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit<br/>of Biological Material</li> </ol> | <ol style="list-style-type: none"> <li>5. <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)</li> <li>6. <input type="checkbox"/> Interview Summary (PTO-413),<br/>Paper No./Mail Date _____</li> <li>7. <input checked="" type="checkbox"/> Examiner's Amendment/Comment</li> <li>8. <input checked="" type="checkbox"/> Examiner's Statement of Reasons for Allowance</li> <li>9. <input type="checkbox"/> Other _____</li> </ol> |
|--|---|

### **EXAMINER'S AMENDMENT**

An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

The application has been amended as follows:

The title has been amended to read: "A Method and System for Safely Arbitrating Disk Drive Ownership Using a Timestamp Voting Algorithm."

The abstract has been amended to read:

In data storage system including multiple servers and multiple disks, and wherein each server is in communication with each disk, each disk has a reserved disk block for each of the servers. The system includes a disk arbitration mechanism that uses a timestamp-based voting algorithm over the disk blocks associated with the servers to exchange votes for a primary server to arbitrate access of the servers to a set of disks. The disk arbitration mechanism further includes each server writing its state in its own associated disk block in each disk, and reading all the other servers' disk blocks in each disk in order to determine which server has access to, use, and control of the disks at a given time.

The following is an examiner's statement of reasons for allowance:

Claims 1 and 3-35 (renumbered 1-34) are allowable over the prior art of record. Claims 17-25 were indicated as being allowable over the prior art of record as previously indicated.

The limitations of independent claims 1 and 7, when considered as a whole, are allowable over the prior art of record in that the prior art made of record does not teach, either alone or in combination, each element of the respective independent claims. As such dependent claims 3-6, 8-16, and 26-35 are allowable over the prior art of record as they depend on an allowable base claim.

While Palmer (U.S. Patent No. 6,748,438) teaches a state machine for each server (comprising figures 3 and 4), no specific teaching regarding maintaining a --last time at which each other server's state changed-- as well as a --value associated with that state when it last changed-- is taught. Palmer only teaches a server comprising a "current view" and maintaining a "local view" (figure 3), but does not specifically teach storing a last time in which the state of the other servers changed state as part of the respective local views.

Frank et al. (U.S. Patent No. 6,871,222) teaches in figure 3 that heartbeats (i.e. the "state") of a current server is only sent to one other server (in ring fashion shown) and therefore does not teach each server maintaining in a memory a last time at which each server's state changed as well as a value associated with the state when it last changed, as claimed by the Applicant.

Sim et al. (U.S. Patent Application Publication No. 2003/0046369) teaches a voting method for a group of distribution servers in a distribution server cluster in ¶147 as well as each server checking for the status of each of the other servers (via a heartbeat indication) at a control

unit database. However, as shown in figure 19, the control unit 1550 database is not stored in each memory of the distribution servers but rather independently of distribution server cluster 1510. Such an arrangement is contradictory to Applicant's claimed invention.

Finally, Rao et al. (U.S. Patent Application Publication No. 2005/0262143) teaches in ¶80 a cluster using disk-based messaging to vote and elect a primary server, but Rao does not specifically teach each limitation of Applicant's independent claims.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Shane M. Thomas whose telephone number is (571) 272-4188. The examiner can normally be reached on M-F 8:30 - 5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Matt M. Kim can be reached on (571) 272-4182. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 2186

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



Shane M. Thomas



MATTHEW KIM  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 2100